

UDOT Dye Test Standard Operating Procedure

Purpose:

UDOT's MS4 permit requires the following:

- UDOT's entire storm drain system must be mapped including all storm drain pipe and other storm water conveyance structures (drains, creek, ditch, retention pond, detention pond, etc.).
- An inventory must be created of floor drains inside UDOT-owned or operated buildings. This inventory must be kept current. UDOT must ensure that all floor drains discharge to the appropriate locations.
- UDOT must develop site maps/diagrams to evaluate stormwater discharges and ensure that only stormwater is allowed into the storm drain system and that the appropriate BMPs are in place to minimize pollutants from entering the storm drain system.

When in doubt of a drainage pattern or ultimate discharge point, a dye test, video test, or smoke test are all tools to aid in making these determinations. Dye testing is an excellent indicator of illicit connections and is conducted by introducing non-toxic dye into sinks, shop drains and other plumbing fixtures. The discovery of dye in the storm drain, rather than the sanitary sewer, conclusively determines that the illicit connection exists. The following procedures are for conducting a dye test.

Test Preparation:

- Review storm drain, sewer maps, and any available as-built/utility drawings to identify lateral sewer connections and how they can be accessed. Print the station map included in the station SWPPP which can be found in Uplan at <http://uplan.maps.arcgis.com/home/item.html?id=a647f52268964e7aa890332b6b544be6>
- Prepare the following materials prior to the test.
 - Tracing dye in 2 colors in order to alternate between them when testing multiple fixtures. * All dyes must be non-toxic, biodegradable and NSF certified.
 - Outfall/manhole observers
 - Flashlight
 - Cameras
 - Materials to document findings
- Notify the local health department and DWQ (801) 536-4300 of when and where dye testing is occurring so that dye released into the storm drain system or local waterway is not mistaken for a spill or illegal discharge.

Test Procedure:

- Station personnel at the identified manhole, sump, cleanout, outfall or other appropriate locations needed to watch for dye. ***Dye observed in an o/w separator does NOT necessarily mean the fixture is plumbed to the sanitary sewer nor do manholes marked "sewer" necessarily indicate that the line goes to the sanitary sewer.**

- See product guidelines for the amounts of dye needed. If it is a dye that needs dissolving in water before pouring, follow the product instructions for the initial dilution rate.
- Add dye to fixture (floor drain, sink, etc.). Make sure to record the time the dye was added and mark the location on the map for each fixture where dye was added.
- Flush each fixture with 20-30 gallons of water minimum or until dye is observed in a manhole, storm sewer outfall, or other location. The more water flushed will shorten the time it takes for the dye to be observed.
- Watch the sanitary and storm drain discharge points until the dye is observed. Once dye is observed, note the time, and repeat steps at each drain being tested.
- Document all observations.

Test Results

- If dye is observed in the sanitary sewer sump, cleanout, or manhole and no dye is observed in the storm drain sump, cleanout, manhole or waterway, then the test is successful. Record the results both on the SWPPP map and in the drain inventory for the station.
- If any dye is observed in the storm drain sump, cleanout, manhole, or waterway, retest if necessary to determine which fixture(s) or drains(s) are cross-connected.
- Take the cross-connected fixtures out of service until they are properly connected to the sanitary sewer (upon approval of local authorities) or arrangements are made for containment, collection, and proper disposal of wastewater. Document a timeline of necessary corrections needed, and follow-up dye testing results to document the corrections made.

Helpful Hints

- Locating Missing Dye. The investigation is not complete until the dye is found. Some reasons for dye not appearing include:
 - The building/fixture is actually hooked up to a septic system.
 - The sewer line is clogged.
 - There is a leak in the sewer line or lateral pipe.
- Facility SWPPP map should be marked with numbered drains tested that could correspond to a Dye Test Log which includes:
 - Fixture number;
 - Fixture name or description;
 - Color of dye used;
 - Dye in time;
 - Dye out time;
 - Location of dye observed and other information/notes